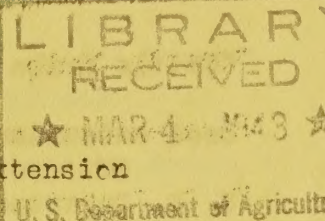


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★ HELP WIN THE WAR BY CONTROLLING CATTLE GRUBS

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Every year cattle grubs in this country "chew" holes in hides and thus ruin enough potential leather for the soles of 30 million pairs of shoes. This is a serious loss when our fighting and civilian armies must be kept well shod for high efficiency. In addition, these same grubs rob the milk pail of an undetermined, but considerable, amount of milk which is now sorely needed. Besides these losses, 2 to 3 pounds of jellied meat must be trimmed from the loins of the carcass of every grubby animal slaughtered - another loss of strategic food.

Fortunately, these losses can be largely prevented. The grub menace can be greatly reduced and perhaps eliminated. All it takes is concerted and community action by all cattle owners to destroy the grubs shortly before they would emerge naturally from the backs of the cattle. This is the vulnerable period in the life cycle of the heel fly, or parent of the cattle grub. If no grubs are allowed to emerge alive from the animals, there will be no heel flies the next year to produce more grubs.

The time to start is about 3 weeks after the first grubs appear in the animals' backs. The time will vary in the different States, according to geographical location. In the South it may be in November or early December, while in the North it may be as late as February or March.

Practical Methods of Applying Control Measures

Hand Extraction.-- During the present emergency, farmers with only a few cattle would do well to squeeze the grubs out by hand or remove them with forceps. Care should be taken not to break the cyst and allow the grub to slip back under the skin. Details on this method are given in Farmers' Bulletin 1596.



"Cattle Grubs or Heel Flies with Suggestions for their Control." Your neighborhood extension leader has a copy of this bulletin or he can get one from the U. S. Department of Agriculture.

Oil Can with Benzol.- Commercial benzol applied with a common oil can has been found satisfactory for killing cattle grubs. The can should have a very small spout so that it can be inserted in the grub holes. About 20 drops of benzol is the desired amount to inject in each grub hole. This is the least amount you could inject with an oil can with one squeeze.

Iodoform Ointment Applied by Hand.- The usual practice in applying ointment is to locate the grub hole in the animal's back with one finger, and with the next finger press the ointment into the hole. To make the ointment mix 1 pound of iodoform with 5 pounds of petrolatum, or ordinary petroleum jelly. These materials can be obtained at most any drug store.

#### Application of Cube or Derris

Fine-ground roots of cube or of derris, and also other rotenone-bearing powders, are the most satisfactory materials to use in the control of cattle grubs. However, both cube and derris are imported, and the present supply is short. Cube and derris may be used in either liquid or powder form and, except in the Northern areas where the coat of hair of the cattle is extremely dense, the powder will give as good results as the liquid. The best method to use in applying the powder or liquid will depend on the number of cattle to be treated, the equipment available, and other local conditions.

Dusting Method (Cube or Derris).- Dusting equal parts by weight of sulfur and cube or derris powder on the backs of cattle and gently rubbing this in with the hand has given good control, except where the coat of hair is too dense. One pound of the dust will treat about 15 cattle. It is best applied from a container with 1/4-inch holes in the lid. If the holes are made with a 20-penny nail or



similar object, they should be made from the inside so that the ragged edge will not prevent easy flow of dust. Smaller holes will necessitate more shaking which will waste material, and cause a cloud of dust which will be irritating to the operator.

Scrubbing Method (Cube or Derris).-- The formula for mixing materials for scrubbing is as follows:

Water.....	1 gallon
Cube or Derris (5% Rotenone).....	12 ounces
(Soap.....)	2 ounces
Either ( or	
(Wettable Sulfur.....)	6 ounces

This formula is based on powders containing 5 percent of rotenone. In case it is necessary to use a product containing more or less than 5 percent, adjustments should be made.

To mix, dissolve the soap in warm, soft water; then add a small amount of the soapy water to the powder, and make it into a paste; then add the remainder of the water and stir well.

If sulfur is used, mix the powder and sulfur together; then add water slowly, making the mixture into a paste before adding all the water. It is better to use sulfur if the water is hard, because soap causes the material to clot and to settle, thus reducing its effectiveness. This amount is sufficient to treat from 12 to 16 cattle, depending on the length and thickness of the hair, and the size of the cattle.

The least expensive equipment for applying the liquid mixtures to the backs of cattle is a screw-top fruit jar and a scrub brush. From the outside of the jar lid, punch about 20 holes with a 16-penny nail. Remove about every other tuft of bristles from a stiff-bristled scrub brush. While scrubbing the cow's back with the brush in one hand, continue to sprinkle on the solution from the jar with the other hand. Continue this operation until the solution has been



worked through the hair onto the skin everywhere that the grubs occur. Each quart of liquid should treat about three animals. If properly done, the scrubbing will loosen the scab over each grub and allow the rotenone suspension to penetrate sufficiently to kill the pest. Most of the dead grubs will eventually be cast out through the opening and the opening will gradually heal over with scar tissue.

Owners of large herds who have power-spraying machinery will save time and material by using this method. A different formula is used which may be obtained from your county agent. He can also supply you with more detailed information on the entire problem.